
Nanoscience, ES&H Status

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ESH Coordinators Mtg 8/25/06

Agenda

- ESH Issue
- DOE Policy
- Nanoscience Research Centers Activities
- BNL Nanosafety Working Group (BNL Policy Council)
- Institutional Nanoscience Safety Advisory Committee
- Approach to Nanomaterial ESH Document
- Implementation of Approach document
- Other stuff

ES&H Issues *re*: Working with Nanomaterials

- Working with nanoscaled materials involves unknown environmental, safety and health issues
 - Detection methods, equipment and PPE not standardized
 - Exposure standards do not exist with regulatory agreement
 - International activity with minimal coordination:
 - toxicological research (university, NIOSH, BNL, DuPont etc.)
 - regulatory development (ANSI, ASTM, EPA, NIOSH, DOE-851)
 - developing US Federal interagency cooperation
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DOE SC Policy and Implementation Plan

- **DOE Policy P 456.1 (9-15-05; S. Bodman) Safety Framework**
 - “All work with nanomaterials be conducted in a safe and responsible manner”
 - “DOE will adopt and implement...both existing and future ES&H best practices.... relating to nanotechnology developed by recognized standard setting organizations.”
 - “DOE organizations ... will stay abreast of current research ... relating to the potential hazards and impacts of nanomaterials, and will ensure that this knowledge is reflected in the identification and control of these potential hazards and impacts at their facilities.”
- **BNL Implementation Plan:**
 - BNL will comply with 456.1
 - BNL will proactively develop and apply best guideline procedures
 - View @ <http://www.bnl.gov/cfn/>

ES&H/Nano Activities: NSRC level

- Nanoscience Research Centers ES&H Working Group adopted BNL “Working with Nanomaterials” draft to use as baseline for all NSRCs
 - active inter laboratory discussion
 - NSRC document finalized 8/07 (being incorporated into each labs standards systems)
 - philosophy: proactive motion for DOE advisement
- NSRC ESH Working Group information exchange:
 - NSRC facility design aspects
 - “lessons learned” meetings (design, construction & ops)
 - Developing nano sampling protocols

BNL Policy Council Nanosafety Working Group

- Sub-Group of Policy council chartered by Lab Director to:
 - Evaluate impact of “Approach to Nanomaterial ESH” doc to BNL operations
 - Determine course of action for public inquiries on nanoscience
 - Assist in developing a nano science communication plan
 - Membership:
 - J.Taylor, P.Bond, E. Murphy, C.Wirick, P. Daum, D.Gibbs, M. Lynch, H. Fritz, R. James, B. Casey, S. Dierker, S. Hoey

Policy Council Nanosafety Working Group

- Recommendations:
 - Approved “Approach” document
 - Recommended appointing an Institutional Nanoscience Safety Advisory Committee (INSAC)
 - Still reviewing Nanoscience Communications Plan
 - Target Audience
 - Schedule for outreach
 - Risk Presentation
 - Frequently Asked Questions on Nanoscience

Institutional Nanoscience Safety Advisory Committee

- Formation of INSAC was a recommendation of the Policy Council sub-committee on nanosafety
- Tasked with keeping the Lab Director apprised on nano issues and progress on the implementation of approach document.
- Membership proposed includes, ESH, Scientific (large and small science), operations, & medical
- Committee to start mid/late September

Nanoscience Communication Plan

- Outlines the first steps of communications and stakeholder engagement by;
 - Laying out tactics to prepare spokespersons
 - Promote, Publicize, Celebrate as appropriate Nanoscience activities
 - Reach out to engage and involve the laboratory's most interested stakeholders (staff, regulators and public)

Approach to Nanomaterial ESH

- Interim procedure being signed off this week, to SBMS next week
- Applies to “Engineered” nanomaterials
- Is being applied by all five NSRC’s
- Primarily concerned with particulates
- Covers: Engineering and Administrative controls, Lab Ops, PPE, Medical Surveillance, Transportation, Waste Management, Spill Management.
- Based on existing good engineering and handling practices gathered from industry, academia, DOE, DOT, EPA, NIOSH, etc.
- Underlying premise that material is hazardous until proven otherwise.

Implementation of Approach Doc

- What Depts/Divisions need to do for approach doc implementation
 - Inventory of all ongoing nano related experiments, (building, lab #, ESR# & Point of Contact)
 - Depts/Divisions to review experimental practices against approach doc and identify any gaps
 - Make modifications to ESR as necessary to meet approach doc or send to INSAC for review
 - Info to Peters/Hoey
 - Inventory by 9/15/06 (sooner would be better to support BHSO assessment see slide 13)
 - Identify gaps by 10/31/06
 - Update ESR's as necessary by 12/29/06

Implementation of Approach Doc

- Applies only to “engineered” nanomaterials not naturally occurring.
- “Engineered” nanomaterials = (NIOSH def)
 - Materials consisting of, or containing structures of between 1 and 100 nanometers (nm) that use properties unique to nanoscale forms of materials
 - Precursors, intermediates and wastes used during, or resulting from synthesizing such nanomaterials
 - Laboratory-scale nanomaterials, i.e., substances for which the containers utilized for their reactions, transfers, and other manipulations are designed to be easily and safely manipulated by one person. “Laboratory scale” excludes those workplaces that generate commercial quantities of materials

What else.....

- DOE Assessment of Nanoscience at BNL.
 - Scheduled for 9/18 & 19
 - Will evaluate implementation of ISM and ESR requirements for nanomaterial work including the lab's implementation of Policy 456.1 and,
 - Lab's communication efforts on nanosafety
 - Need to provide;
 - List of facilities and labs where work with nanomaterials is conducted and a POC for each facility
 - Copies of 5 ESR's completed for experiments utilizing nanomaterials
 - Assessment team includes: Mo Ali, John Carter, Maria Dikeakos, & John Houck-SC-ASO
- Inquiries from CAC and Brookhaven Roundtable on nanoscience at BNL-will drive communications plan implementation
- Ongoing CFN construction, initial operations to begin early 07